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Critiquing the Health Belief Model and Sexual Risk Behaviours among Adolescents: A Narrative Review of Familial and Peer Influence

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Abstract

Research into the rising rates of sexually transmitted infections and unwanted pregnancies among adolescents has highlighted the challenge in developing sexual education campaigns that affect behavioural change. Frequent attempts to apply the otherwise robust Health Belief Model to the challenge of high-risk sexual behaviours have yielded confounding results from sexually active teens who discount the seriousness of consequences or their susceptibility to them. Social dynamics involving familial and peer relationships may strongly influence teen sexual risk-taking; the growing population of sexual risk-takers is strongly associated with disengaged family environments and a shift in alliance from family to peer community. This shift in identification to peer groups, in the absence of supportive parental relationships, is correlated with permissive and coercive sexual behaviour and a future of substance abuse, depression, sexually transmitted infections and unwanted pregnancy.

This paper seeks to explore the correlation between peer interaction and parental relationships and availability, while assessing the predictive value of the Health Belief Model in relation to adolescent high risk sexual behaviour. Doing so can inform research to further clarify the nature of these associations and investigate new insights into adolescent sexual dynamics and new policy and programming approaches to sexual health promotion.

Keywords: sexual health, adolescence, youth, health decision, health belief model, peer influence, family influence, sexual behaviour

1. Introduction

An extensive and growing body of research supports the need for effective sexual and reproductive health (SRH) information and services for adolescents (Breinbauer & Maddaleno, 2005; Buzi, Smith & Barrera, 2015; Mitchell, Patrick, Heywood, Blackman & Pitts, 2014). The picture it presents is of earlier initiation of sex, rising rates of sexually transmitted infections (STIs) and unwanted pregnancies (Milnes, Pegrum, Nebe, Topfer, Gaal, Zhang & Hunter, 2011). The widespread awareness of the negative health consequences of adolescent risk-taking has led to a plethora of SRH resources (Ashton, Dickson & Pleaner, 2009; Kågesten, Parekh, Tuncalp, Turke & Blum, 2014) although evaluative evidence suggests that the majority of resources are not effective in promoting behaviour change (Ashton et al., 2009; Breinbauer & Maddaleno, 2005) – and Australia is no exception (Agius, Pitts, Smith & Mitchell, 2010; Skinner & Hickey, 2003). Given the lack of effectiveness of sexual health awareness campaigns among adolescents, this narrative review seeks to identify the influence of peer and familial relationships in high risk sexual behaviour, while also examining the applicability of the Health Belief Model in understanding the high incidence of such behaviour.

More than a quarter of Australian boys and girls in year 10, half of year 12 boys and about two-thirds of year 12 girls have had sexual intercourse (Milnes et al., 2011). Of sexually active youths, fewer than half consistently use condoms. Rates of STIs in Australia have increased over the past decade, with chlamydia the most frequently reported STI. Chlamydia diagnosis for men and women aged between 15 and 29 years accounts for 82% of diagnoses for the whole population (Mitchell et al., 2014). Morbidity associated with sexual behaviour extends beyond the high rates of STIs. Among Australian adolescents, the birth rate for 15 to 19-year-olds is 17 per 1000, and 12% of year 12 girls reported using the morning after pill in 2008 (Mitchell et al., 2014).

In the West, we note that the rates of both STIs and early pregnancies are rising (Agius et al., 2010). This appears paradoxical among the high proportion of digitally-connected adolescents with ready access to online information

and resources concerning the risks of early sexual initiation and unprotected sex. In Australia, research out of La Trobe University found the prevalence of STIs among young adults is high and has climbed steadily over the past decade, and the country's teenaged pregnancy rate is among the highest in the world (Agius et al., 2010). In response to these unenviable statistics and the consequences of STIs and teen pregnancy for individuals and the broader community, dozens of youth sexual health education and awareness programs have been developed to curb the incidence of high risk sexual behaviour (Dyson, 2005; Kågesten, et al., 2014; Skinner & Hickey, 2003).

2. Sexual and Reproductive Health Promotion and Education

As health promotion initiatives are developed to address what is perceived to be a gap in awareness of the negative consequences of high-risk behaviour, research into the efficacy of these programs – where participatory and behavioural information are available – has shown they are unsuccessful in delivering behavioural change among participants (Dyson, 2005; Hennessy & Tanner-Smith, 2015). For the majority of programs, evaluation is not possible. Kågesten's (2014) global meta-analysis of SRH programs reviewed more than 36,000 records and peer reviewed articles. Only ten met their inclusion criteria for evaluation, and only half that many provided any evidence of associated behaviour change among participants.

Assessment of school-based sexual and reproductive health curricula, community and peer programs, web-based resources and a variety of programs offered through community health or medical services has provided evidence that these measures can increase adolescents' *awareness* of health issues (Eggleton, Jackson, Roundtree & Pan, 2000) but behaviour change, if it occurs, is rarely sustained beyond the duration of the program. Simply put, awareness of negative consequences is not enough to generate behaviour change (Kågesten et al., 2014). Alarmingly, research conducted by the AIDS Community Demonstration Project (Centre for Disease Control (CDC) AIDS Communicable Diseases Policy Research Group, 1999) found a direct *positive* correlation between adolescents' perception of negative health consequences from both drug use and unprotected sexual intercourse and their intention to engage in these activities. This willingness to knowingly engage in risky sex and drug use (see also Ravert & Zimet, 2009) – despite adolescents' awareness of the possible negative consequences – speaks clearly to the inadequacy of existing education campaigns to promote positive behaviour change. It also supports the requirement for health promotion strategies that are anchored in a better understanding of adolescent behaviour and motivations.

3. Significance of the Problem

The emerging consensus of the need for a better response to adolescents' continued engagement in sexual risk-taking (Ashton et al., 2009) gained new urgency with the risk of HIV infection. The extensive and growing body of research is uncovering significant complexity. Although some of the causal associations remain uncertain, the path from early initiation of sex is associated with well-cited risks: greater numbers of sexual partners in adolescence and young adulthood, higher rates of STIs and early pregnancy and abortion, greater incidence of drug and alcohol abuse and a higher risk of depression (Hallfors, Waller, Bauer, Ford & Halpern, 2005; Keith, McCreary, Collins, Smith & Bernstein, 1991; Thompson & Auslander, 2011; Vasilenko, Kugler, Butera & Lanza, 2015).

The almost universal failure of sexual health information resources in promoting the adoption of low-risk sexual behaviour (Ashton et al., 2009; Skinner & Hickey, 2003; Agius et al., 2010) has resulted in new research into public health strategies and a better understanding of the contributors to teen sexual behaviour.

The body of research points to a complex association between adolescent sexual risk-taking and many accompanying factors. Depression (Hallfors et al., 2005; Korol, 2008; Rink, Tricker & Harvey, 2007; Thompson & Auslander, 2011), feelings of hopelessness (Dumont & Provost, 2015; Thompson & Auslander, 2011), stress (Kershaw, Lewis, Milan, Niccolai & Ickovics, 2004), lack of trust in or support from parents (De Looze, Constantine, Jerman, Vermeulen-Smit & Ter Bogt, 2014; Meschke, Barthalomae & Zendall, 2000; Sorbring, Hallberg, Bohlin & Skoog, 2015), and a lack of religiosity or spirituality (Bethune, 2015, Kågenstem & Blum, 2015) are elements frequently associated with early onset and high-risk sexual behaviours. Lifestyle factors and family dynamics are positively correlated with high-risk sexual activity among adolescents. These include having an absentee father (Keith et al., 1991; Rink et al., 2007) and family discord (Korol, 2008), lack of monitoring or engagement by parents (Boyce-Rodgers & McGuire, 2012; Dumont & Provost, 2015; Khurana, Bleakley, Jordan & Romer, 2015), low socio-economic status (Keith et al., 1991) and low educational motivation and attainment (Kågesten & Blum, 2015; Vasilenko et al., 2015).

Investigation into the effect of individual factors on adolescent sexual behaviours yields a collection of associations with early sexual risk-taking. Kågesten and Blum (2015) noted one of the principal factors that protected against first sex at or before age 14 was education; boys and girls who did not complete grades 10 to 12 were three times more likely to report having had early sexual experiences.

Research also indicates that religiosity and conservative values concerning sex and love both halved the prevalence of girls' early sexual initiation (Kågesten & Blum, 2015). Miller (2015) argues that an intensely-felt relationship with a higher power "is more protective than any other factor against the three adolescent dangers; spiritually-connected teens are 40% less likely to abuse alcohol or other substances, 80% less likely to engage in unprotected sex and 60% less likely to suffer from depression than adolescents who are not spiritually oriented" (p. 269).

However, as much as spirituality or religiosity may mitigate risks, the adoption of spiritual or religious beliefs – and positive values relating to education and future professional opportunity – can also be sequelae to positive, involved parenting. Notwithstanding the particular protective dynamics of individual qualities like religiosity, educational attainment, social and familial cohesion or elevated socioeconomic status, collectively these elements may represent values imparted through parental influence. The protective influence of supportive parental involvement (and the risks associated with its absence) are well documented (De Looze et al, 2014; Keith, et al., 1991; Vasilenko et al., 2015).

4. Summary

Despite adolescents' frequent exposure to the Internet (e.g., Sorbring et al., 2015) and the current availability of information on SRH, the rates of sexually transmitted infections in Australia and globally continue to rise. Independent of the availability of information or awareness of the consequences of unsafe sexual practices, we see the rates of unsafe sex, sexually transmitted infections and unwanted pregnancy continue to rise.

To assess the contribution of factors associated with high risk adolescent sexual behaviour, considerable research has explored the application of the Health Belief Model (HBM) (Rosenstock, 1974). The structure and analytical rigour that the HBM provides in other areas of health behaviour suggests a new conceptualisation of adolescent sexual risk taking is required. Given evidence of the lack of adolescent sexual risk avoidance, despite awareness of susceptibility and potential severity of consequences – both primary drivers for health behaviour for the HBM – the model's seeming lack of applicability requires both a close exploration of adolescents' willingness to disregard risk, and to a review and potential modification of the HBM to accommodate adolescent sexual health behaviours.

5. The Health Belief Model

Several research projects have explored adolescent sexual risk-taking through the lens of the Health Belief Model, which, though developed more than 50 years ago by social scientists with US Public Health Service, continues to be applied to health education and promotion analysis and development (Carpenter, 2010; Glanz & Bishop, 2010). The model seeks to predict engagement in health-related behaviour according to subjective assessment of the severity of the health problem and its consequences, the subjects' perceived susceptibility to the problem, benefits of, and barriers to taking action to modify the risk. An additional element is the cue to action, or trigger, to encourage an assessment of risk, such as awareness of a symptom or exposure to health promotion messages.) In 1988, the four key elements of the HBM (seriousness and susceptibility of the threat and benefits and barriers to remedial action) received an addition in the form of self-efficacy, the subjective sense of one's ability to enact the motivational dictates of the model. These enabling factors may include cognitive ability and sense of self-empowerment (see Figure 1).

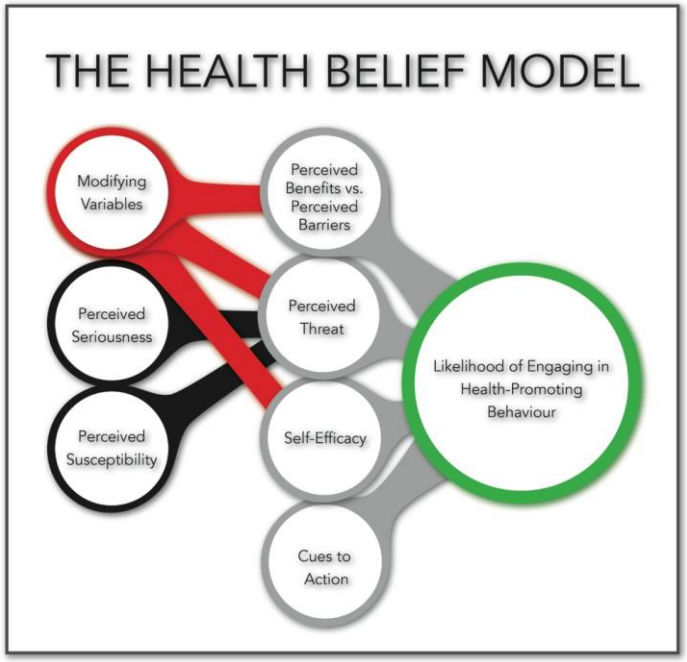

Figure 1. The Health Belief Model

(Rosenstock, 1974. Image: T. Wilson)

6. Critique of the HBM in Relation to Adolescent Sexual Health Behaviour

Despite the canonical standing and long history of the HBM's application in the literature, this framework consistently fails to account for high-risk adolescent sexual behaviour. A study of sexual activity and contraceptive use among low-income urban black adolescent females (Keith et al., 1991) discovered the subjects simply did not behave according to their assessment of threat and benefit, and wondered whether issues of cognition might interfere with the expected behaviour change. The authors conceded, however, that while "maturity and levels of cognitive processing may affect decision-making regarding risk of unprotected sex… it does not [account for] differences between sexually active and not sexually active groups, nor contracepting or non-contracepting groups" (p. 783). The variables that did affect adolescent sexual behaviours (in term of abstaining from sex during early and middle adolescence) as we have come to know, are "the church and the family, including the presence of the father" (p. 781).

A 1991 study of variations in adherence to safer-sex guidelines by heterosexual adults to support AIDS prevention (Maticka-Tyndale, 1991) found similar results. This Canadian study of 38,000 adolescents and young adults aimed to explore the explanatory power of the HBM, concluding: "the simple health belief model has little explanatory power… The expected associations between susceptibility and action do not emerge." (p. 52). In discovering that concern about contracting AIDS was not predictive of consistent condom use by either males or females, Boone and Lefkowitz (2004) concluded: "as suggested by others, the role of perceived vulnerability in the HBM may need to be reconsidered in models predicting sexual behaviours" (p. 64). Further limiting the HBM in this domain, the authors discovered that measures of self-efficacy in condom use were also unreliable contributors to the model's predictive strength.

Significantly, five factors researchers found to influence risk reduction were: perceived peer norms, prior or baseline sexual behaviour, contact with others infected with HIV, attitudes toward condoms, and perception of susceptibility, which, as noted above, was found to be low despite an awareness of the seriousness of the health threat (Maticka-Tyndale, 1991). The findings from this very large sample were supported by an American study into the impact of an HBM-based sexuality and contraceptive education program (Eisen, Zellman, & McAlister, 1990). The program explored the efficacy of a 12-15-hour experimental curriculum based on the HBM to increase teenagers' awareness of the likelihood of pregnancy, the serious negative consequences of early maternity and paternity and the benefits of delayed sexual activity and the use of contraception. The study discovered that while boys' sexual

initiation was marginally delayed as a result of the program, it had no effect on girls, except that those in the experimental program were even *less* likely to use contraceptives than their peers.

Despite criticism of the applicability of the HBM because of subjects' counter-intuitive response to seriousness and susceptibility (e.g. Boone & Lefkowitz, 2004), Steers et al. (1996) argued the HBM could predict between 18% and 25% of the variance in numbers of sexual partners and condom use in a sample of European-American college students. Lollis and Kuczynski (1997) similarly discovered found the HBM predicted between 18% and 22% of the variance in the number of sexual partners. Thus, despite what will be considered moderate to strong correlation, and the HBM's well-documented explanatory power for health behaviours, the limitation of this model is in the lack of predictive health behavior response among the three-quarters of cases for which the HBM found no correlation.

Two primary criticisms of the HBM as it relates to adolescent sexual behaviours are that the model does not contend effectively with the influence of emotion, let alone the labile nature of emotion in adolescence (Carpenter, 2010), nor does it predictably account for the impact of peers and peer norms. In order to render the HBM more complete or informative, the "modifying variables" (see Figure 1) should include additional influences such as parental values, religiosity or socialization and peer influence. In their study of the contribution of peer norms and socialisation in the adoption of adolescent safer sex practices, Boone and Lefkowitz (2004) discovered peer perceptions were significant in predicting condom use, however the HBM was not. Further, they found that neither university-aged subjects' fear of AIDS nor their perceived vulnerability was predictive of condom use. Measures of self-efficacy were also not supportive of condom use - contrary to the model. Thus, an understanding and application of the significant additional modifying variables will contribute to the predictive strength to the HBM as it is currently conceived.

7. Mediation of Peer Influence Through Engaged Parenting

A consistent predictor of early initiation of sex and high-risk sexual behaviours is disengaged parenting, expressed as limited parental involvement (Akers et al., 2011; Choukas-Bradley et al., 2014), an absence of trust and intimacy (De Looze et al., 2015) and the lack of parental monitoring of adolescents' behaviour and activities (Khurana et al., 2015).

There is extensive evidence to support the compounded protective factors that develop in the care of loving and supportive parents (Korol, 2008). The resilience adolescents derive from membership in a family reflects the benefits they garner from a range of consequent factors, such as greater opportunity for religiosity or spirituality (Bethune, 2015), higher performance and greater optimism in the areas of academics and professional aspirations, and greater social facility to promote friendships and positive relationships. Further, there is strong evidence that, of all external factors related to adolescent sexual behaviours, parental influence is the strongest (Ali & Dwyer, 2011; Brock & Beazley, 1995; De Looze et al., 2015; Khurana et al., 2014; Rogers and McGuire, 2012). In the presence of external cultural, community and peer influences, parental influence is shown to exert a critical mediating influence. Ronis and O'Sullivan (2011) demonstrated parental values exerted more than a three-fold greater influence than peers for adolescents transitioning to intimate sexual behaviour.

In a longitudinal study of adolescent sexual behaviour trajectories, Choukas-Bradley et al. (2014) discovered that peer norms, while a potentially influential source of adolescents' sexual socialisation (L'Engle & Jackson, 2008) require susceptibility on the part of the teens, which is greatly reduced in the presence of parental influences. In family environments featuring disengaged parents, however, building peer alliance – already central to adolescent identity development and key to building social support – becomes much more prominent (Akers et al., 2011; Choukas-Bradley et al., 2014; Rink et al., 2007).

Protective factors supported by peer relations (particularly in the absence of engaged parents) include the promotion of social identity, the development of normative values, the presence of a support network and buffer from vulnerability, and the promotion of greater confidence, efficacy and empathy as a result of group membership (Breton & Labelle, 2015; Dumont & Provost, 2015; Korol, 2008). Unfortunately, despite positive sequelae of peer group alliance and membership, the same level of protection does not extend to sexual health outcomes. L'Engle, Brown & Kenneavy (2006) found that the influence of parents and schools slowed adolescent sexual initiation, while peers served as agents that increase teens' sexual activities. Research suggests that this effect is especially prominent regarding popular peers (Cohen & Prinstein, 2006). Lyons, Giordano, Manning and Longmore (2011) noted that one of the key benefits of friendships during adolescence is the level of support they provide. "Peers, relative to one's parents or other adults, are less likely to be judgmental – a social dynamic that creates many opportunities … for the exploration of issues of sexuality" (p. 444). However, in addition to the perceived support and greater sexual latitude that adolescents experience among their peers, Rogers and McGuire (2012) discovered that of 6,957 American high school students in grades 7, 9 and 11, almost a quarter of the sexually active youth

(23.6%) had been subject to peer sexual coercion. Despite the presence of coercive sex and the maladaptive influence of peers on sexual behaviour, the establishment and maintenance of peer relations are clearly primary drivers during adolescence in the absence of engaged parents.

8. Considerations for an Adolescent Sexual Health Behaviour Model

Limitations in the application of the Health Belief Model to adolescents' sexual health decision-making, it may be argued, result from the model's lack of account for the potentially irrational influence of emotion. Among adolescents, emotions influencing risky sexual activity are feelings of love for a (potential) partner, fear of disappointing or losing a prospective partner, or fear of jeopardising peer relations. For a health behaviour model to adequately account for significant barriers and motivators, the presence of emotional influencers will need to be among them.

A more fundamental limitation of the HBM, however, is that in the context of adolescent sexual health behaviours, the primary behavioural directive may not be avoidance of ill health or physical harm. Notwithstanding the hormonally-fuelled sexual motivation, the quest for social connection and alliance will likely represent a more pressing mandate for teens than personal health and safety (Breton & Labelle, 2015; Choukas-Bradley, 2014; Dumont & Provost, 2015). There are many examples of seemingly irrational responses by adolescents in the application of the Health Belief Model to sexual behaviour. Keith et al. (1991) found that the validity of the HBM can be subverted by a seemingly irrational driver that was more pressing than physical risk avoidance: the need to behave sexually in a manner that supports peer alliance. Peer values to which adolescents may be susceptible include perceived peer beliefs about condoms and birth control and age of sexual onset (Choukas-Bradley et al., 2014, Rink et al, 2007), desirable oral, vaginal and anal sexual behaviour, and acceptable numbers of partners (Lyons et al., 2011). In addition to the high incidence of coercive sex with peers (Rogers & McGuire, 2012), sex is also employed voluntarily as a means of developing and solidifying peer membership (Kershaw et al, 2004).

There are many elements of peer influence in adolescent sexual behaviour that, unless integrated into a new or existing model, will preclude a reliable assessment of their impact on risk. Teens' susceptibility to peer influences varies according to deficits in their familial environments, and the prevailing values among peer groups will introduce a corresponding range of risk.

Adolescents' early sexual initiation, so strongly associated with peer alliance in the absence of parental influence, has frequently been correlated with drug and alcohol use and depression. Pivotal American research by Hallfors et al. (2005) on the associations between risky sex, substance abuse and depression revealed a strong predictive relationship between early sex combined with substance abuse and the onset of depression. Particularly dramatic, the incidence of depression among adolescent girls who have had multiple sexual partners is almost 11 times that of the abstaining reference group. While the impact of combinations of sex and drugs and sex and alcohol yielded strong associations with future depressive diagnosis, the evidence suggests that it is the sexual behaviours and not sex-related substance abuse that are causally linked to peer influence (Hallfors et al., 2005).

Further research will explore the association of alcohol and drug use with conflicting emotions, such as guilt, shame and disappointment in the context of adolescent sexual behaviours, particularly if such activity contravenes cultural mores or familial expectations.

9. Conclusion

Extensive research into the physical and mental consequences of early and high risk sexual behaviour strongly supports the importance of parental influence in adolescents' adoption of safer sexual activities: later onset of sexual initiation and more consistent use of condoms and birth control and fewer sexual partners. Religiosity or spirituality, academic focus and membership in sports or other extracurricular groups - all protective factors in themselves - as well as reduced susceptibility to peer influence are all consequences of active parental engagement in adolescents' development. In the absence of such engagement, the evidence indicates a realignment from family to peer influence, and a strong motivation toward building and maintaining a strong peer community. Peer values have been shown to be sexually permissive, however, and provide role models for sexual risk taking in the absence of the moderating effect of parental supervision. There is also strong evidence for high rates of peer sexual coercion and the use of sex in an attempt to strengthen peer bonding.

Despite the well-argued benefits of peer connection in terms of promoting resilience and social identity, it facilitates high risk sexual behaviour (and sexual coercion) and does not appear to provide protection against the mental or physical health consequences of this behaviour, specifically depression, substance abuse, unplanned pregnancies and sexually transmitted infections. Thus, the inclination to shift from familial to peer group alliance for a high proportion of teens during early adolescence represents a very heavy burden of physical and mental illness for

millions of young people and society as a whole. However, understanding the strength of connection between the increased susceptibility to peer influence and pursuit of peer alliance and the consequential negative sexual health outcomes provides new insights into health promotion strategies. New solutions may involve empowering parents to play a role in school-based sexual and reproductive health programs to re-emphasise the protective role of familial values. Another possibility may be the development of education programs that expose and address the impact of familial and peer relationships and the anticipated motivations and behaviours that will confront younger adolescents in their future.

Conflict of Interest Statement

The authors of this manuscript certify that they have no affiliations with or involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this manuscript.

Human Welfare Statement

This manuscript is based on analysis of existing peer reviewed articles, and no identifiable data is contained in the manuscript.

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